

ABSTRACT OF THE INVENTION

Material System for Use in 3D-Printing

3D-printing is a process, in which a powder based material system, comprised of filler material and binder, are bonded with each other in layer manner. For this the powder is applied in layers and the powder layer is "printed" with a solvent, which activates the binder and therewith adheres the filler material. Thus there is produced a cross sectional view of a construction component. As soon as this has been completed, a new powder layer is applied and newly "printed". This process is repeated so long until the complete construction component is provided.

This type of construction component possesses a sufficient form stability for many uses. For qualitatively high requirements, in particular in the case of very fine or even filigreed structures, a higher form rigidity or stability is however desirable.

The task of the present invention is comprised thus therein, of providing a material system for use in a 3D-printing, which exhibits a higher form stability.

The task is solved by a material system, which contains binder and solvent as well as optional filler materials, wherein the binder is soluble in the solvent, as well as two complementary polyelectrolytes, and/or an initiator for a cross linking reaction of the binder.

The advantage of such a mixed material system is comprised in the essentially higher binder force between the individual particles. This enhanced binder force results either from the acid-base linkages, which form between the complementary polyelectrolytes,

or from the supplemental networking initiated by the initiators, or from both. Substantially higher binding forces between the individual particles means at the same time a substantially higher shape stability of the 3D-printing product.

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